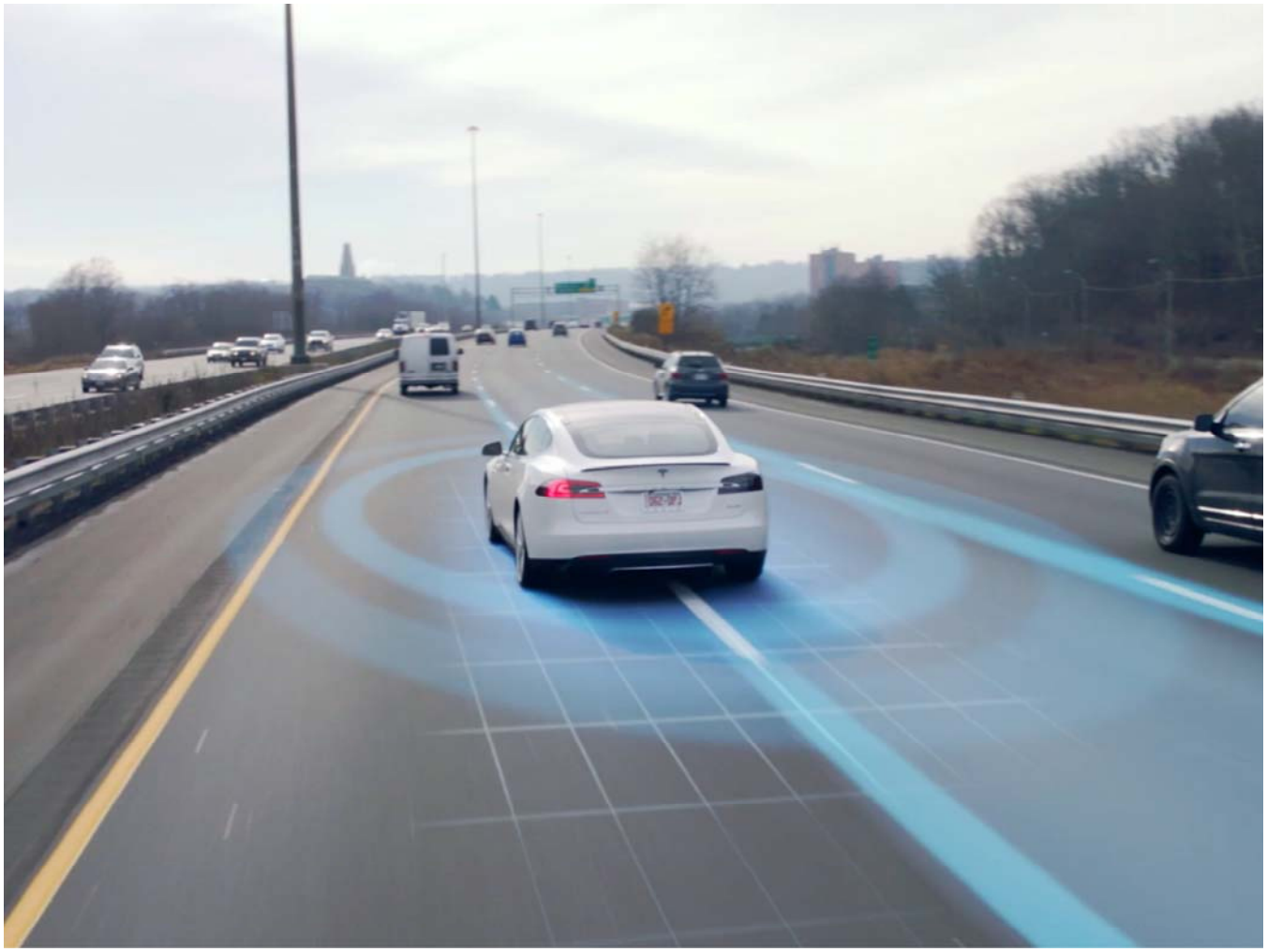
# EXHIBIT 9

BUSINESS INSIDER

# 6 scenarios self-driving cars still can't handle

DANIELLE MUOIO
AUG. 25, 2016, 9:02 AM



*Tesla*

When a Tesla Model S was involved in the first fatal crash while Autopilot was activated, Tesla wrote in a blog post that the Autopilot system did not notice "the white side of the tractor trailer against a brightly lit sky, so the brake was not applied."

The fatal accident is still under investigation by government regulators, but that one sentence doesn't bode too well for Tesla. It shows that despite how far autonomous technology has come, there are still some situations that are better handled by human drivers.

That's not to say human drivers are perfect — more than 37,000 people die in the US each year from car crashes, according to the Association for Safe International Road Travel. As many companies working on driverless cars have noted, having autonomous vehicles on the road could drastically reduce that number.

But for that to happen, driverless cars still need to improve in some key areas.

## 1. Driverless cars struggle going over bridges.

*Kevin Cole/Flickr*

Raffi Krikorian, Uber's engineering director, recently told Bloomberg that its driverless cars struggle going over bridges. That's because Uber has meticulously mapped roads so that the driverless car can compare what it's seeing with what is supposed to be there, helping it avoid objects and pedestrians.

Because bridges don't have many environmental cues like surrounding buildings, it's hard for the Uber car to figure out where it is. GPS helps the car position itself, but not to the accuracy Uber wants.

## 2. Self-driving cars also struggle to "see" in inclement weather.

"Heavy snow and rain tend to confuse LiDAR sensors and also cameras," John Dolan, principle systems scientist at Carnegie Mellon's Robotics Institute, told Business Insider. "So you end up having some problems."

LiDAR refers to the light sensing radar that uses lasers to map the car's surroundings so it can "see" the world. When there's snow on the ground, the cars' LiDAR sensor and camera have a difficult time seeing the lane markers and other markers that help them drive safely.

Ford made somewhat of a breakthrough in overcoming this problem when its driverless cars successfully drove in snow on a closed course.

Ford created high-resolution 3D maps that come with information not only about the road, but also what's above the road, like its topography and nearby signs and landmarks. This way, when the car can't see lane markings, it can use landmarks to pinpoint itself on the map.

## 3. In that same vein, driverless cars struggle on roads without clear lane markings.

*Flickr/nat urazmetova*

Tesla CEO Elon Musk vented about this problem to a group of reporters in October, according to the Washington Post. At the time, he showed the lack of clear lane markings on Interstate 405 near Los Angeles International Airport.

When driverless cars can't distinguish the lanes, it makes it nearly impossible for them to drive or change lanes safely. Andrew Ng, chief scientists at Baidu, wrote in a Wired post that it will be necessary to make "modest changes to our infrastructure" for driverless cars to be successful on our streets.

## 4. Driving in cities is much harder for autonomous cars than cruising on the highway.

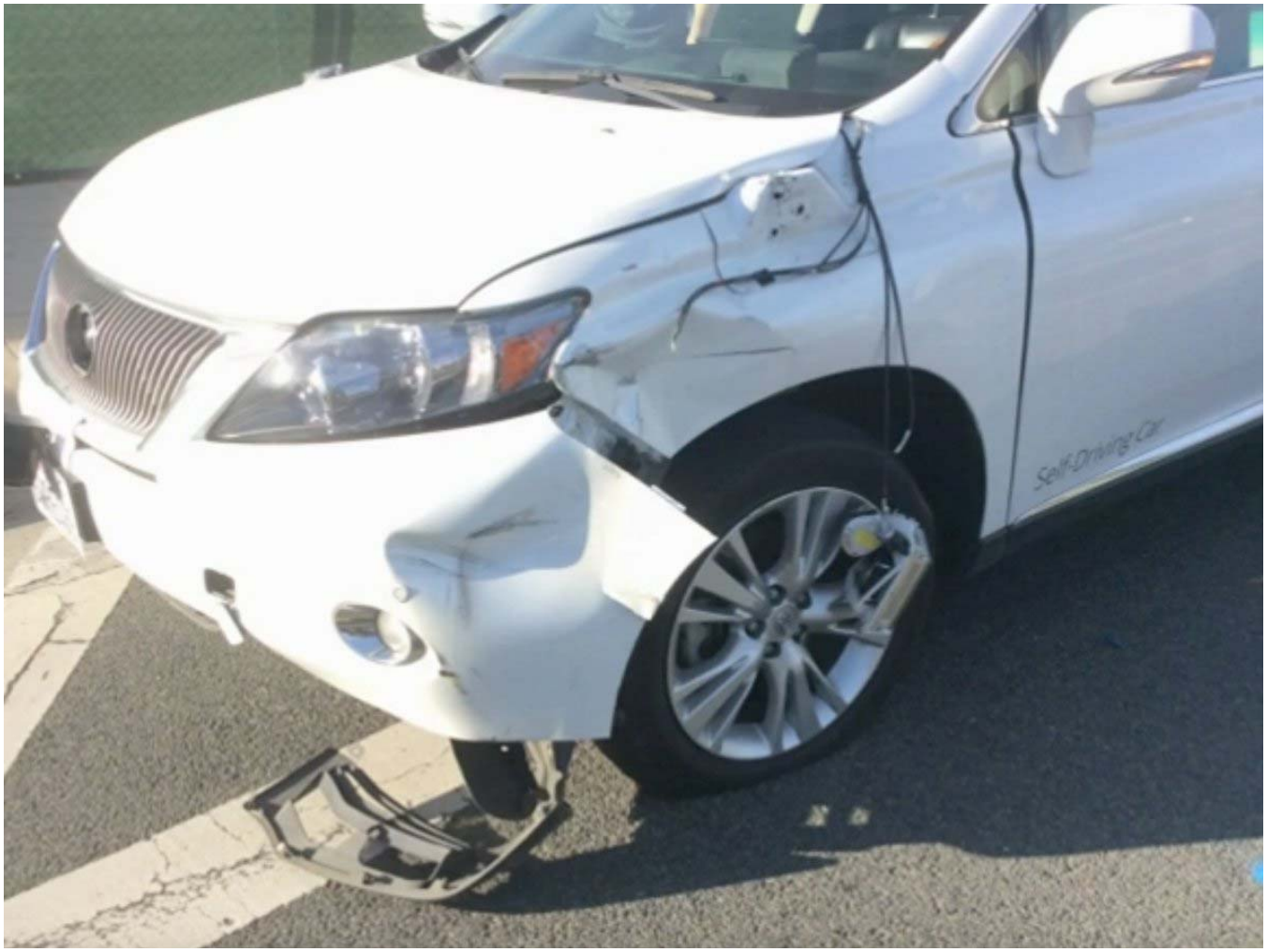

*kaysha/Flickr*

There's a few reasons for this. The most obvious is that there are simply fewer things to worry about hitting when on a highway. Cities are a mess of pedestrians, cars, potholes, traffic cones — you get the point. All of those obstacles mean driverless cars have a lot to keep track of, and it can be easy to miss something.

But Dolan said it can also be difficult for the driverless car's GPS to locate properly in cities.

"If you're trying to do urban driving and depending on GPS to a large extent, then when you get into areas where there are a lot of tall buildings it's hard to receive the GPS signal and you'll have drop outs," he said.

## 5. And, naturally, robot cars can't interact the same way humans can, which is problematic.




*YouTube/Associated Press*

Sure, there are rules in driver's education about who gets the right of way at dreaded four-way intersections. But more times than not, we rely on waving to let someone know it's ok to go. Driverless cars don't have that luxury built in.

Dolan said the same issue goes for merging on a highway or changing lanes. There are many ways we convey intention that disappears when there's literally no driver in the front seat.

"We convey intentions in a way that result in natural interactions, rather than what you would call robotic interactions that would unnerve or frustrate a human being," he said.

In February, a Google car got into its first accident that could be considered the driverless car's fault. The car went to merge into the left lane when it saw a bus approaching. The car assumed the bus would stop or slow down and proceeded anyway, only to crash into the bus' side.

We can't say that if a human driver had been in that situation the accident would have been avoided. It's not like drivers are perfect at changing lanes. But there is something to be said about how a human driver could have signaled to the bus driver to see if it was ok to go.

## 6. Driverless cars can also have trouble in high-speed driving situations.


*Thomson Reuters*

Dolan noted that when human drivers try to merge onto roads with cars traveling at higher speeds, they tend to inch forward to make sure it's ok. Often, people will pull out in front of traffic under the assumption that cars will slow down for the merge, he added.

But a driverless car probably wouldn't take that risk because if it projected the velocity of the upcoming car, it would pull back to avoid a crash, he said.

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